IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Original): An angle detection device for use with a rotary shaft, the angle detection device comprising:

an angle detector including an excitation coil, with the excitation coil arranged on the rotary shaft and supplied with excitation voltage, and a pair of detection coils, with each detection coil being arranged near the excitation coil to induce detection voltage when excitation voltage excites the excitation coil, wherein the detection voltages of the pair of detection coils have different phases; and

a controller connected to the angle detector for calculating the rotational angle of the excitation coil from the detection voltages induced in the detection coils;

wherein the controller includes a correction unit for correcting the amplitude of the excitation voltage to maintain each of the detect ion voltages at a predetermined value.

Claim 2 (Original): The angle detection device according to claim 1, wherein the correction unit selects one of the detection voltages in accordance with the rotational angle of the excitation coil to obtain the ratio of the amplitude of the selected detection voltage relative to a predetermined target signal amplitude and correct the present amplitude of the excitation voltage with the ratio.

Claim 3 (Original): The angle detection device according to claim 2, wherein the correction unit calculates a new amplitude of the excitation voltage by multiplying the present amplitude of the excitation voltage by the ratio.

Claim 4 (Original): The angle detection device according to claim 2, wherein the correction unit compares the amplitudes of the two detection voltages and selects one of the amplitudes according to the comparison result.

Claim 5 (Original): The angle detection device according to claim 1, wherein the correction unit corrects the present amplitude of the excitation voltage so that excitation current generated by the excitation voltage increases or decreases.

Claim 6 (Currently Amended): A torque sensor for use with an input shaft and an output shaft, the torque sensor comprising:

a torsion bar having a spring constant connected between the input shaft and the output shaft;

a first angle detection device for detecting a rotational angle of the input shaft;

a second angle detection device for detecting a rotational angle of the output shaft; and

a calculation unit for calculating a torsion amount of the torsion bar from the deviation between the rotational angle of the input shaft detected by the first angle detection device and the rotational angle of the output shaft detected by the second angle detection device and for calculating the torque applied to the input shaft based on the torsion amount and the spring constant of the torsion bar;

the first angle detection device including:

a first angle detector having a first excitation coil, with the first excitation coil arranged on the input shaft and supplied with a first excitation voltage, and a pair of first detection coils, with each detection coil being excited by the first excitation coil

to induce first detection voltage, wherein the first detection voltages of the pair of first detection coils have different phases; and

a controller connected to the first angle detector to calculate the rotational angle of the first excitation coil from the first detection voltage induced in each of the first detection coils, wherein the controller includes:

a correction unit for correcting the amplitude of the first excitation voltage to maintain each [[pf]] <u>of</u> the first detection voltages of the first angle detector at a predetermined value;

the second angle detection device including:

a second angle detector having a second excitation coil, with the second excitation coil arranged on the output shaft and supplied with a second excitation voltage, and a pair of second detection coils, with each detection coil being excited by the second excitation coil to induce second detection voltage, wherein the second detection voltages of the pair of second detection coils have different phases; and

a controller connected to the second angle detector to calculate the rotational angle of the second excitation coil from the second detection voltage induced in each of the second detection coils, wherein the controller includes:

a correction unit for correcting the amplitude of the second excitation voltage to maintain each of the second detection voltages of the second angle detector at a predetermined value.

Claim 7 (Original): The torque sensor according to claim 6, wherein the correction unit:

selects either one of the first detection voltages in accordance with the rotational angle of the first excitation coil, obtains a first ratio of the amplitude of the selected detection

voltage relative to a target signal amplitude, and corrects the present amplitude of the excitation voltage applied to the first excitation coil with the first ratio; and

selects either one of the second detection voltages in accordance with the rotational angle of the second excitation coil, obtains a second ratio of the amplitude of the selected detection voltage relative to the target signal amplitude, and corrects the present amplitude of the excitation voltage applied to the second excitation coil with the second ratio.

Claim 8 (Original): The torque sensor according to claim 7, wherein the correction unit:

calculates a new amplitude of the first excitation voltage applied to the first excitation coil by multiplying the present amplitude of the first excitation voltage by the first ratio; and

calculates a new amplitude of the second excitation voltage applied to the second excitation coil by multiplying the present amplitude of the second excitation voltage by the second ratio.

Claim 9 (Original): The torque sensor according to claim 6, wherein the correction unit:

compares the amplitudes of the first detection voltages to select one of the first detection voltages in accordance with the comparison result; and

compares the amplitudes of the second detection voltages to select one of the second detection voltages in accordance with the comparison result.

Claim 10 (Original): The torque sensor according to claim 6, wherein the correction unit:

corrects the present amplitude of the first excitation voltage so that excitation current generated by the first excitation voltage increases or decreases; and

corrects the present amplitude of the second excitation voltage so that excitation current generated by the second excitation voltage increases or decreases.

Claim 11 (Original): A method for detecting the rotational angle of a rotary shaft, the method comprising:

applying excitation voltage having a predetermined amplitude to an excitation coil arranged on the rotary shaft;

inducing detection voltages having different phases in a pair of detection coils that are arranged near the excitation coil by exciting the excitation coil;

calculating a rotational angle of the rotary shaft from the detection voltages; and

correcting the amplitude of the excitation voltage to maintain each of the detection voltages at a predetermined value.

Claim 12 (Original): The method according to claim 11, wherein said correcting includes:

selecting one of the detection voltages in accordance with the rotational angle of the excitation coil; and

correcting the present amplitude of the excitation voltage with a ratio of the amplitude of the selected detection voltage relative to a predetermined target signal amplitude.

Claim 13 (Original): The method according to claim 12, wherein said correcting the present amplitude of the excitation voltage includes:

calculating a new amplitude of the excitation voltage by multiplying the present amplitude of the excitation voltage by the ratio.

Claim 14 (Original): The method according to claim 11, wherein said selecting includes:

comparing the amplitudes of the detection voltages to select one of the detection voltages in accordance with the comparison result.

Claim 15 (Original): The method according to claim 11, wherein said correcting includes:

correcting the present amplitude of the excitation voltage so that excitation current generated by the excitation voltage increases or decreases.